

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended): A station-side communicating apparatus that performs one-to-N communication with a plurality of subscriber devices via a time-division-multiple-access line, and controls allocation of upload bandwidth shared by the subscriber devices by acquiring bandwidth request ~~amount~~ amounts from the subscriber devices, the station-side communicating apparatus comprising:

a control signal receiving unit configured to receive a bandwidth request amount from a subscriber device in the subscriber devices;

an allocation determining unit that determines a bandwidth allocation for each of the subscriber devices in each data-collection cycle; and

a history managing unit that ~~stores a history of~~
calculates a request increment as a difference between the received bandwidth request amount ~~acquired~~ and the bandwidth allocation for each of the subscriber devices,

stores a history of plural calculated request increments determined from more than one time of data collections and plural bandwidth allocations for each of the subscriber devices ~~an allocation amount allocated by the allocation determining unit for the bandwidth request amount,~~ and

~~presents~~ calculates a target bandwidth request amount ~~for the allocation determination to the allocation determining unit~~ by dividing the received bandwidth request amount into a ~~plurality of the plural stored calculated~~ request increments indicated by the history,

wherein the allocation determining unit determines the bandwidth allocation for each of the subscriber devices based on the calculated target bandwidth request amount.

2. (Currently Amended): The station-side communicating apparatus according to

claim 1, wherein

the allocation determining unit ~~detects~~ determines a packet data size based on the request increments in the bandwidth request amount that is presented by the history managing unit for each of the subscriber devices, and allocates a portion of the bandwidth request amount as the bandwidth allocation based on the determined packet data size.

3. (Original): The station-side communicating apparatus according to claim 1, wherein the allocation determining unit detects a boundary between the request increments in the bandwidth request amount that is presented by the history managing unit for each of the subscriber devices, and determines the allocation amount from the request increments when executing the bandwidth allocation for a portion of the bandwidth request amount.

4. (Previously Presented): The station-side communicating apparatus according to claim 1, wherein when executing the bandwidth allocation for a portion of the bandwidth request amount by detecting a boundary between the request increments in the bandwidth request amount that is presented by the history managing unit for each of the subscriber devices, if the bandwidth request amount has a remaining portion for which the allocation is not performed in a present bandwidth-update cycle, the allocation determining unit determines a bandwidth to be allocated to a corresponding subscriber device in a next bandwidth-update cycle in advance using the remaining portion.

5. (Original): The station-side communicating apparatus according to claim 1, wherein the history managing unit manages, when taking the history for each of the subscriber devices, a temporal variation of the bandwidth request amount, and disposes the request

increments in the bandwidth request amount to be presented to the allocation determining unit in such a manner that a temporal relation is recognizable between the request increments, based on the temporal variation of the bandwidth request amount, and

the allocation determining unit sequentially determines the allocation for the request increments in the bandwidth request amount that is presented by the history managing unit for each of the subscriber devices from an oldest request increment.

6. (Original): The station-side communicating apparatus according to claim 1, wherein the history managing unit manages, when taking the history for each of the subscriber devices, a temporal variation of the bandwidth request amount, and detects a transmission delay time of a packet data remains in the subscriber device, based on the temporal variation of the bandwidth request amount.

7. (Original): The station-side communicating apparatus according to claim 1, wherein the history managing unit manages, when taking the history for each of the subscriber devices, a temporal variation of the bandwidth request amount, detects a transmission delay time of a packet data remains in the subscriber device, based on the temporal variation of the bandwidth request amount, and when the detected transmission delay time is large, and selects, as the bandwidth request amount to be presented to the allocation determining unit, the bandwidth request amount corresponding to the packet data with the large transmission delay time.

8. (Original): The station-side communicating apparatus according to claim 1, wherein the allocation determining unit classifies the request increments in the bandwidth request amount that is presented by the history managing unit for each of the subscriber

devices into a plurality of groups with different priorities based on contract differences with respect to the subscriber devices, and executes the bandwidth allocation for the request increments from a group with a higher priority.

9. (Previously Presented): A station-side communicating apparatus that performs one-to-N communication with a plurality of subscriber devices via a time-division-multiple-access line, and controls allocation of upload bandwidth shared by the subscriber devices, the station-side communicating apparatus comprising:

- a history managing unit that determines

- a first non-allocation amount as a difference between a first bandwidth request from a subscriber device in the plurality of subscriber devices and a first allocation amount allocated in response to the first bandwidth request from the subscriber device,

- a first request increment as a difference between a second bandwidth request from the subscriber and the first non-allocation amount,

- a second non-allocation amount as a difference between the second bandwidth request and a second allocation amount allocated in response to the second bandwidth request, and

- a second request increment as a difference between a third bandwidth request and the second non-allocation amount; and

- an allocation determining unit that determines a third allocation amount for the subscriber device based on the first request increment, the second request increment, and the third bandwidth request from the subscriber device.

10. (Previously Presented): A method of performing one-to-N communication with a

plurality of subscriber devices via a time-division-multiple-access line, the method comprising:

- determining a first non-allocation amount as a difference between a first bandwidth request from a subscriber device in the plurality of subscriber devices and a first allocation amount allocated in response to the first bandwidth request from the subscriber device;

- determining a first request increment as a difference between a second bandwidth request from the subscriber and the first non-allocation amount;

- determining a second non-allocation amount as a difference between the second bandwidth request and a second allocation amount allocated in response to the second bandwidth request;

- determining a second request increment as a difference between a third bandwidth request and the second non-allocation amount;

- storing, in a storage device, the first and second request increments; and

- determining a third allocation amount for the subscriber device based on the stored first request increment, the stored second request increment, and the third bandwidth request from the subscriber device.

11. (New): The station-side communicating apparatus according to claim 9, wherein the allocation determining unit determines a packet data size based on the first request increment and the second request increment determined by the history managing unit for each of the subscriber devices, and determines the third allocation amount for the subscriber device based on the determined packet data size.

12. (New): The method of performing one-to-N communication according to claim 10, further comprising:

determining a packet data size based on the first request increment and the second request increment; and

the determining the third allocation amount is performed based on the packet size.